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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/045,857	01/09/2002	Nimrod Megiddo	ARC920000123US1	2242

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EXAMINER

NGUYEN, TRONG NHAN P

ART UNIT PAPER NUMBER

2152

DATE MAILED: 04/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/045,857

Applicant(s)

MEGIDDO, NIMROD

Examiner

Jack P Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 January 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-33 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>01/09/02</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claims 1-33 are being examined.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 13 recites the limitation "said plan" in line 1. 'Plan' was not disclosed in prior claims. It is unclear what 'plan' the claim is referring to. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 18 and 27 are rejected under 35 U.S.C. 102(e) as being anticipated by Robertazzi, 6,370,560 (Robertazzi hereafter).

As per claims 18 and 27, Robertazzi discloses a distributed processing system for transferring excess capacity from a plurality of computers to a party requiring execution of a computer program (abstract), said distributed processing system

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comprising: registering a plurality of participating computers connected together over a network (fig. 1, col. 5, lines 20-26; controller inherently registers and stores the participating computers in its database to obtain processing costs from the participating computers); means for determining a normalized excess capacity for each participating computer (col. 6, lines 20-28; system queries all participants for processing capacities/availability and costs); means for partitioning a computer program into a plurality of independent tasks (col. 8, lines 5-8; system divides task into task segments (or subtasks) to obtain optimization of speed and costs); means for distributing said tasks to said participating computers according to normalized excess capacity (col. 8, lines 26-30; system distributes the subtasks to participants for processing); means for determining whether each distributed task will complete within a selected range (timeline) of other said distributed tasks and redistributing any of said tasks determined to not complete within said selected range (col. 8, lines 21-23, 30-36, 61-63; tasks are assigned to participating clients to be completed within a set timeline or finish time; after the tasks are assigned and processed by the clients, system then verifies or checks to see if any tasks are still unprocessed (due to delay or any other reasons); if such tasks are found, system then reassigns to task to an available client for processing); means for receiving completed tasks from said computers (col. 10, lines 11-14; after completing the task, the participants will send the results to the controlling system); and means for determining whether each task has been executed by at least one computer (col. 10, lines 18-21; after receiving the task results from the participants, the controller

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determines if the job is completed; if it is, the controller then sends the final results to the original requester).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1 and 10-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Robertazzi et al, 6,370,560 (Robertazzi hereafter).

As per claim 1, Robertazzi discloses a method of executing a computer program distributed across a plurality of computers (abstract), said method comprising the steps of: a) obtaining available excess computer capacity from a plurality of potential participants (col. 6, lines 20-28; system queries all participants for processing capacities/availability and costs); b) partitioning a computer program into a plurality of independent tasks of any sizes (col. 8, lines 5-8; system divides task into task segments (or subtasks) of any sizes to obtain optimization of speed and costs); c) distributing said tasks to said participants according to available excess capacity (col. 8, lines 26-30; system distributes the subtasks to participants for processing); d) determining whether each distributed task will execute within a selected range of other said distributed tasks (col. 8, lines 30-33; system requests subtasks to be completed within a set timeline); e) beginning execution of said distributed tasks (col. 8, lines 45-48; upon receiving and

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processing the tasks, the participant changes its status to 'busy' to indicate that it is busy processing the task on hand and is no longer accepting any new tasks); f) receiving completed tasks from said participants (col. 10, lines 11-14; after completing the task, the participants will send the results to the controlling system); and g) determining whether every task has been executed by at least one participant (col. 10, lines 18-21; after receiving the task results from the participants, the controller determines if the job is completed; if it is, the controller then sends the final results to the original requester). While Robertazzi discloses the task can be divided into subtasks of any sizes, Robertazzi does not explicitly disclose dividing subtasks into approximately equal sizes. However, it would have been obvious to one of ordinary skill in the art to modify the Robertazzi teachings to divide the tasks into like sizes so the tasks can be evenly distributed among participant computers that allows the system to better approximate the subtask completion times.

As per claims 10-11, Robertazzi discloses partitioning of the computer program a plurality of said independent tasks from said partition are assigned to a plurality of participating machines (see claim 1 rejection); after assigning independent tasks, any task determined to be unassigned is randomly assigned to an available machine (col. 8, lines 51-58; system assigns an unprocessed subtask to an available client for processing).

As per claims 12-13, Robertazzi discloses after every task has been assigned to a plurality of said machines, a completion time is estimated for completion of execution of said computer program; plan is determined feasible based on estimated completion

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time (col. 8, lines 26-33; system assigns tasks to plurality of participant clients; system requests tasks to be completed within a certain time frame or finish time; finish time is an estimated time that the system expects the clients to finish all the task processing and return the results to the system).

As per claim 14, Robertazzi discloses determining whether each task will execute within the selected range further includes reassigning any task determined to be unlikely to execute within said range (col. 8, lines 61-63 and 34-36; after the tasks are assigned and processed by the clients, system then verifies or checks to see if any tasks are still unprocessed (due to delay or any other reasons); if such tasks are found, system then reassigns to task to an available client for processing).

As per claim 15, Robertazzi discloses each completed task is received within a certain time frame or finish time, a check is made to determine whether said completed task is on schedule (col. 10, lines 11-14; also see claims 12-13 rejection; system inherently verifies or checks to ensure compliant that the results are sent back to the controller in time as promised).

As per claim 16, Robertazzi discloses any participant producing a task that is not on schedule (or unfinished) is determined to out of compliance and other unprocessed tasks are reassigned to other available participants (col. 8, lines 61-63 and 34-36; see claim 14 rejection).

As per claim 17, Robertazzi discloses after all said tasks are completed, results are sent to the controller (col. 10, lines 11-14). Robertazzi does not explicitly disclose comparing results to select best solutions from each said task. It is well known and

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would have been obvious to one of ordinary skill in the art to compare and select the best results to determine the most reliable participants that produce error-less results.

Claims 2-9, 19-26, 28-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Robertazzi in view of Ellis, 6,725,250 (Ellis hereafter).

As per claims 2, 19 and 28, Robertazzi discloses i) obtaining a committed resource capacity from registered machine; ii) determining an effective capacity for said registered machine; and iii) determining the normalized excess capacity for said registered machine (col. 6, lines 20-28; system queries all participants for processing capacities/availability and costs; using this data, the system can distribute the tasks to participants that have excess capacity for processing). Robertazzi does not explicitly disclose participants commit their resources in any specific length of time (e.g., hours or minutes). In an analogous art to the claimed invention, Ellis discloses a global network distribution system where tasks distributed for parallel processing by interconnecting participants (abstract). Ellis further discloses participant computers, during night-hours idle time, are committing their excess processing capacities to process requests from requesting clients (col. 26, lines 34-41; idle participants (during night hours) accepts and processes requests from clients). Hence, it would have been obvious to one of ordinary skill in the art to modify and combine the teachings of Robertazzi and Ellis to allow participants to commit unused or excess capacity during the time that they are idle or under low utilization to fully utilize excess computing capacities.

As per claims 3-4, 20, and 29, Robertazzi discloses repeating steps (i) through

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(iii) until a normalized excess capacity is determined for each said registered machine (col. 6, lines 20-28) and each participant is compensated responsive to a corresponding said normalized excess capacity (col. 6, lines 28-31; when the system (controller) sends a task to a client for processing, the system compensates the client according to its costs obtained by the queries).

As per claims 5-6, 21 and 30, Robertazzi discloses a requesting party requests execution of said computer program, said requesting party paying a fee for execution of said computer program (187, 189, fig. 1c; col. 6, lines 48-50; each participant charges clients processing fees to process requests); fee is selectively changeable (increase or decrease) responsive to available normalized excess capacity (col. 6, lines 52-55; fees are updateable by system owner when desired depending on plurality of factors).

As per claims 7-8, and 25, Robertazzi discloses excess capacity determined in by polling each participant (col. 7, lines 51-53; 55-58); using excess capacity and cost data obtained from the participants, the system estimates (or determining the probability) the costs of the excess capacity (col. 7, line 67 – col. 8, line 4; system uses historical data to estimate the costs of the excess capacity).

As per claim 9, Robertazzi does not explicitly disclose each new participant is provided with a benchmark task, participant's excess capacity being adjusted based on the result of benchmark tasks. It is well known and would have been obvious to one of ordinary skill in the art to measure performance of a device against a standard to determine if the device meets or lacks against the standard.

Claim 22 is rejected by similar rationale as claim 12.

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Claim 23 is rejected by similar rationale as claim 15.

Claim 24 and 32 are rejected by similar rationale as claim 17.

Claim 31 is rejected by similar rationale as claim 14.

As per claims 26 and 33, Robertazzi discloses means for measuring execution of tasks; and means for logging measured execution (col. 12, lines 40-42, 53-61; system measures and records the execution of each task to ensure that the tasks are processed in accordance to the agreed finish time).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Smith, 5,694,602; Harchol-Balter et al, 6,223,205 ; Nakaya et al, 5,978,830 ; Ueno et al, 5,781,775 ; Xu, 6,418,462 ; Agraharam et al, 6,240,462 ; Florman, 6,377,975

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jack P Nguyen whose telephone number is (571) 272-3945. The examiner can normally be reached on M-F 8:30-5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenton Burgess can be reached on (571) 272-3949. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

jpn



Dung C. Dinh
Primary Examiner